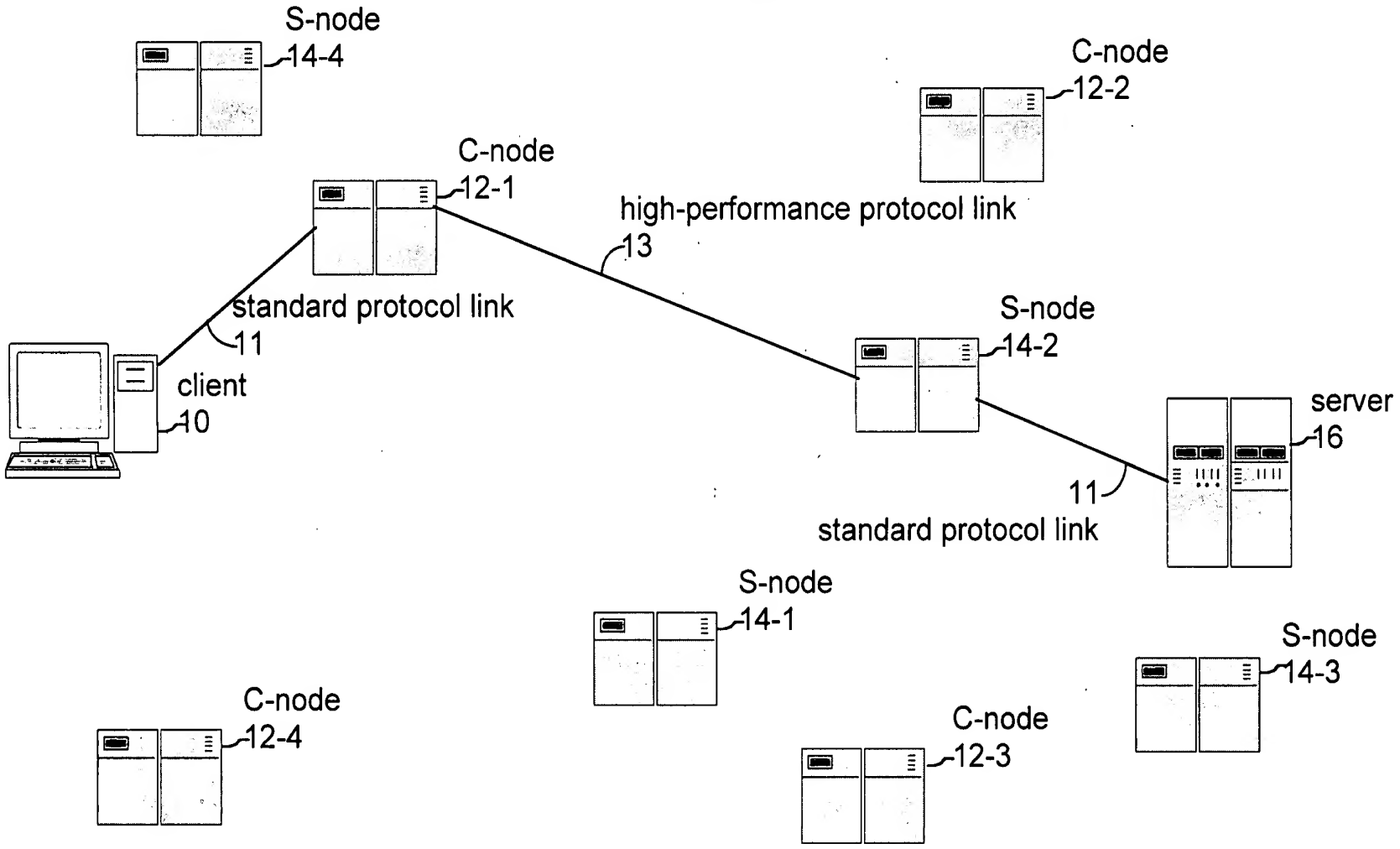
S-node
14-4
C-node
12-2
C-node
12-1
high-performance protocol link
13
standard protocol link
11
client
10
S-node
14-2
server
16
11
standard protocol link
S-node
14-1
S-node
14-3
C-node
12-4
C-node
12-3

Figure 1

Figure 2

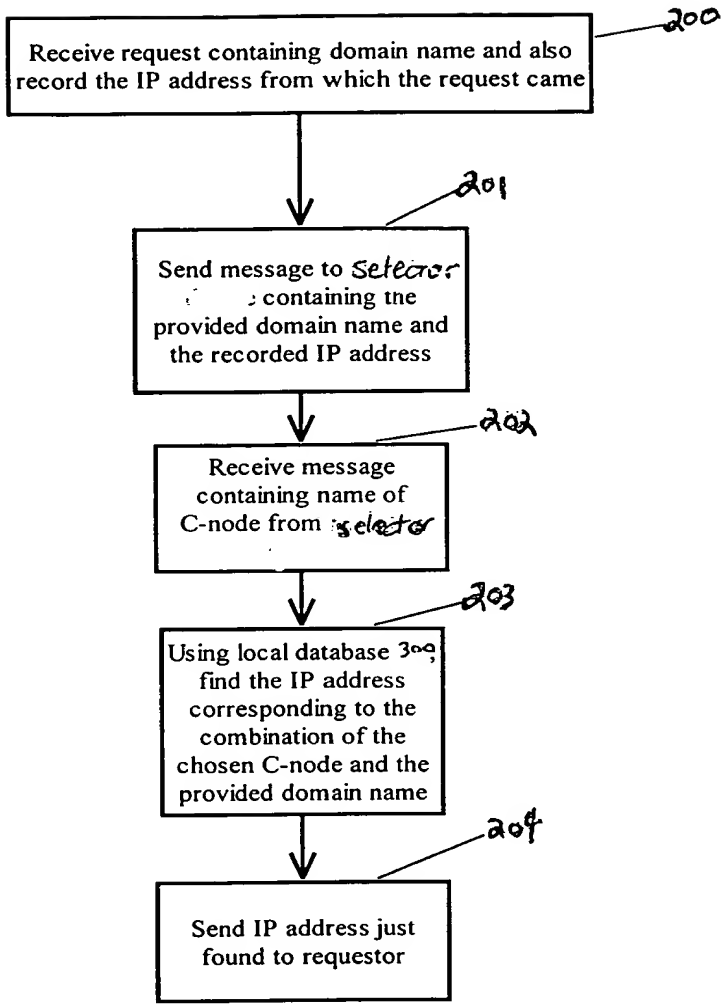

Figure 3

300

Server name (301)	C-node name (302)	IP address (303)
www.site.com	node1	123.45.67.89
www.site.com	node2	123.45.67.90
www.othersite.com	node1	156.78.90.12

Figure 4

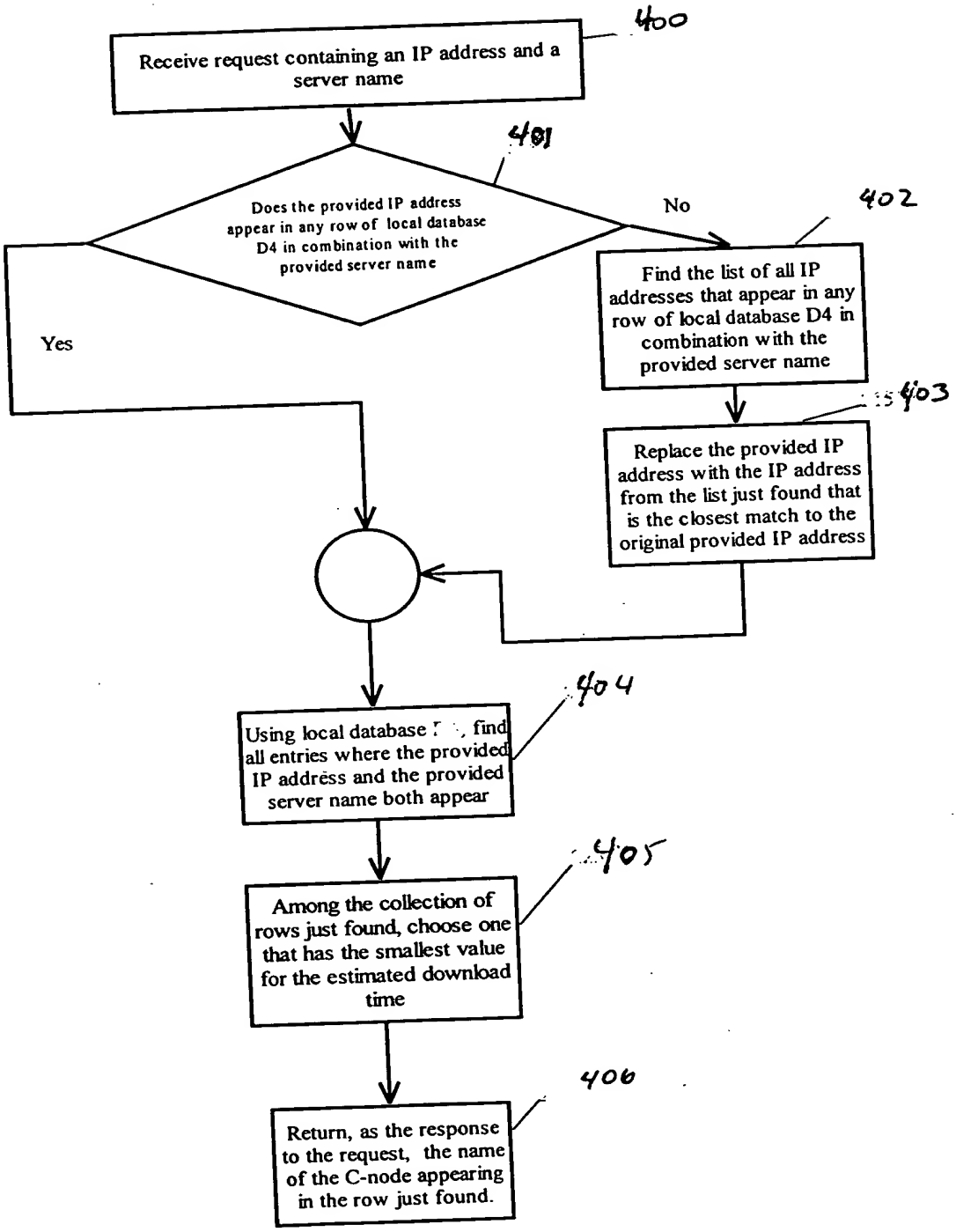
400
Receive request containing an IP address and a server name
401
Does the provided IP address appear in any row of local database D4 in combination with the provided server name
No
Yes
402
Find the list of all IP addresses that appear in any row of local database D4 in combination with the provided server name
403
Replace the provided IP address with the IP address from the list just found that is the closest match to the original provided IP address
404
Using local database D4, find all entries where the provided IP address and the provided server name both appear
405
Among the collection of rows just found, choose one that has the smallest value for the estimated download time
406
Return, as the response to the request, the name of the C-node appearing in the row just found.

Figure 5

IP address (501)	C-node (502)	Server name (503)	Estimated download time (504)
111.11.11.11	node1	www.site.com	5.6
111.11.11.11	node2	www.site.com	6.3
111.11.11.11	node3	www.site.com	8.9
222.11.11.11	node1	www.site.com	13.4
222.11.11.11	node2	www.site.com	7.2
222.11.11.11	node3	www.site.com	7.8
111.11.11.11	node1	www.othersite.com	8.4
111.11.11.11	node2	www.othersite.com	8.6

(500)

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Figure 6

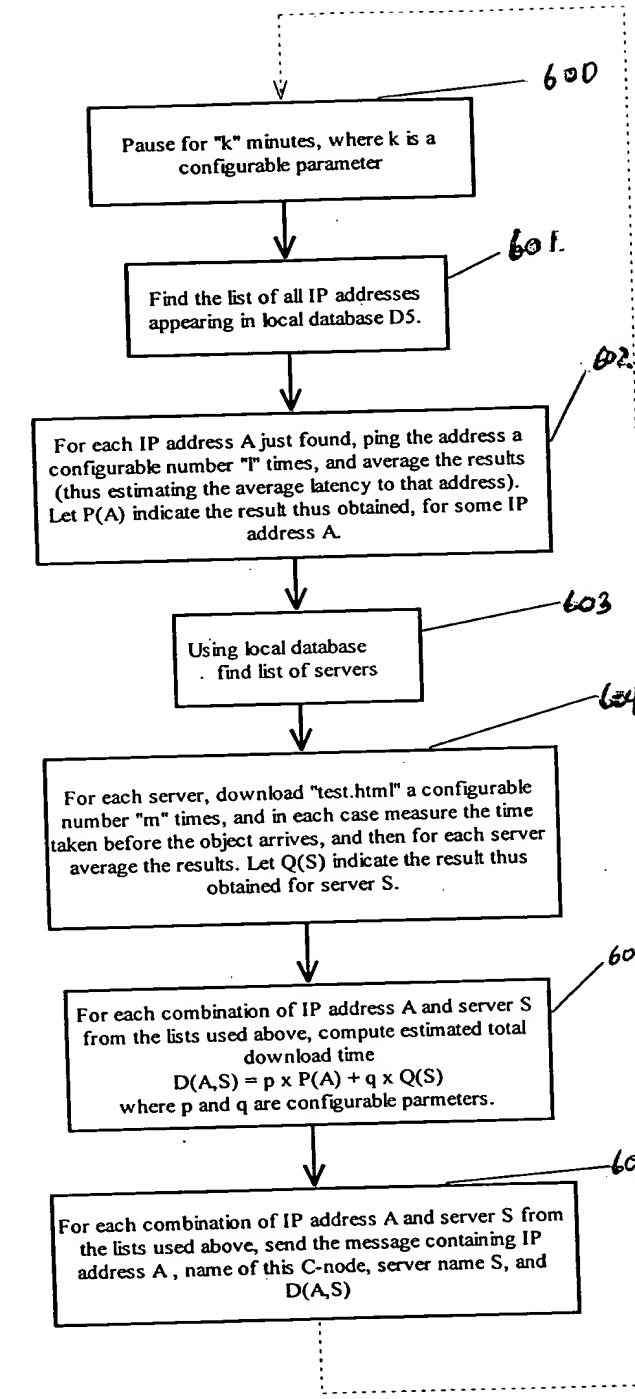


Figure 7

Server name (701)	S-node address (702)
www.site.com	189.12.34.56
www.othersite.com	167.89.12.34

(700)

Figure 8

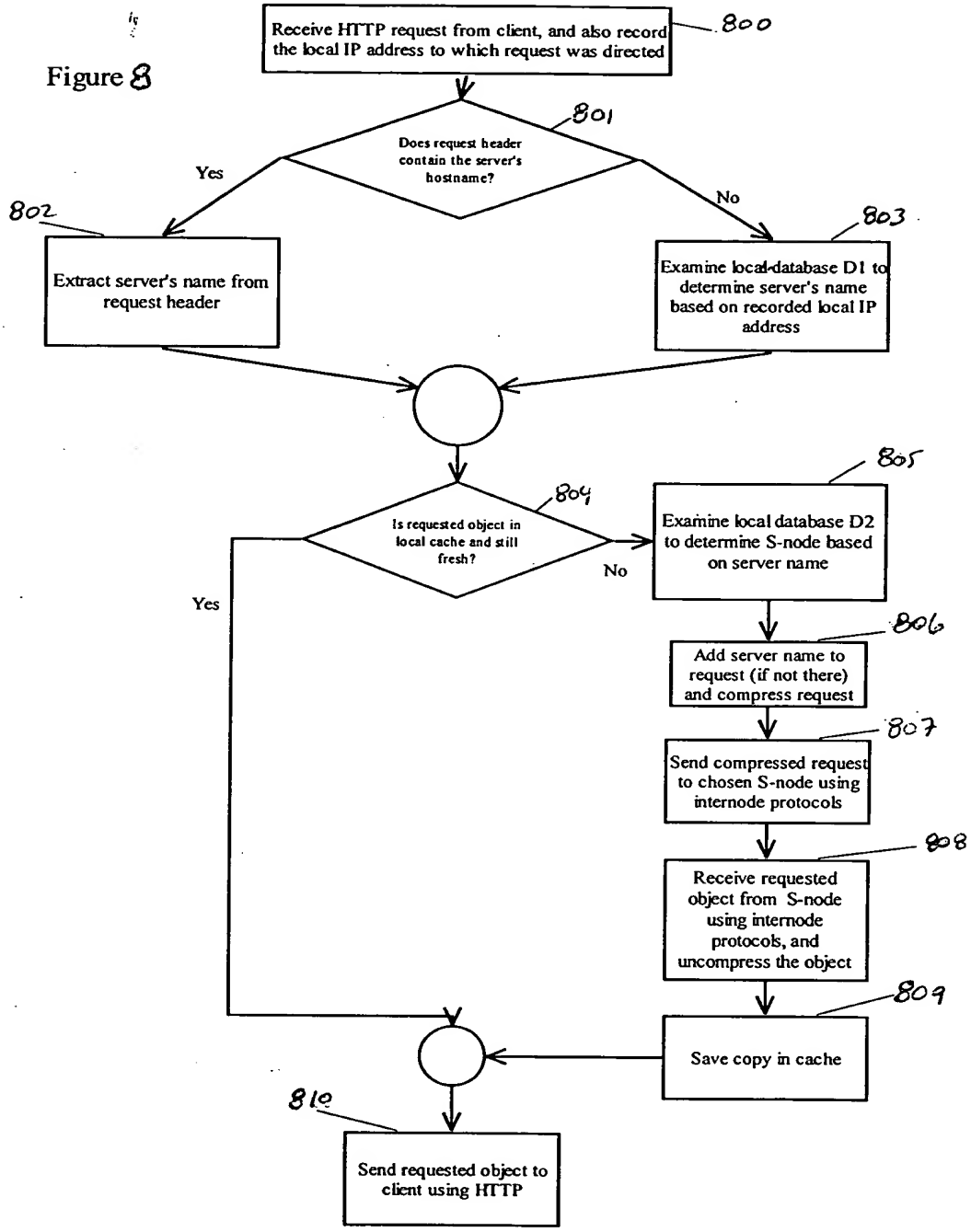


Figure 9

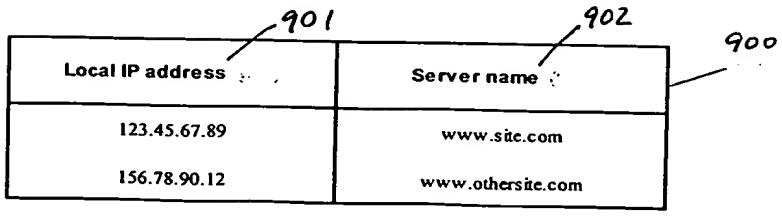


Figure 10

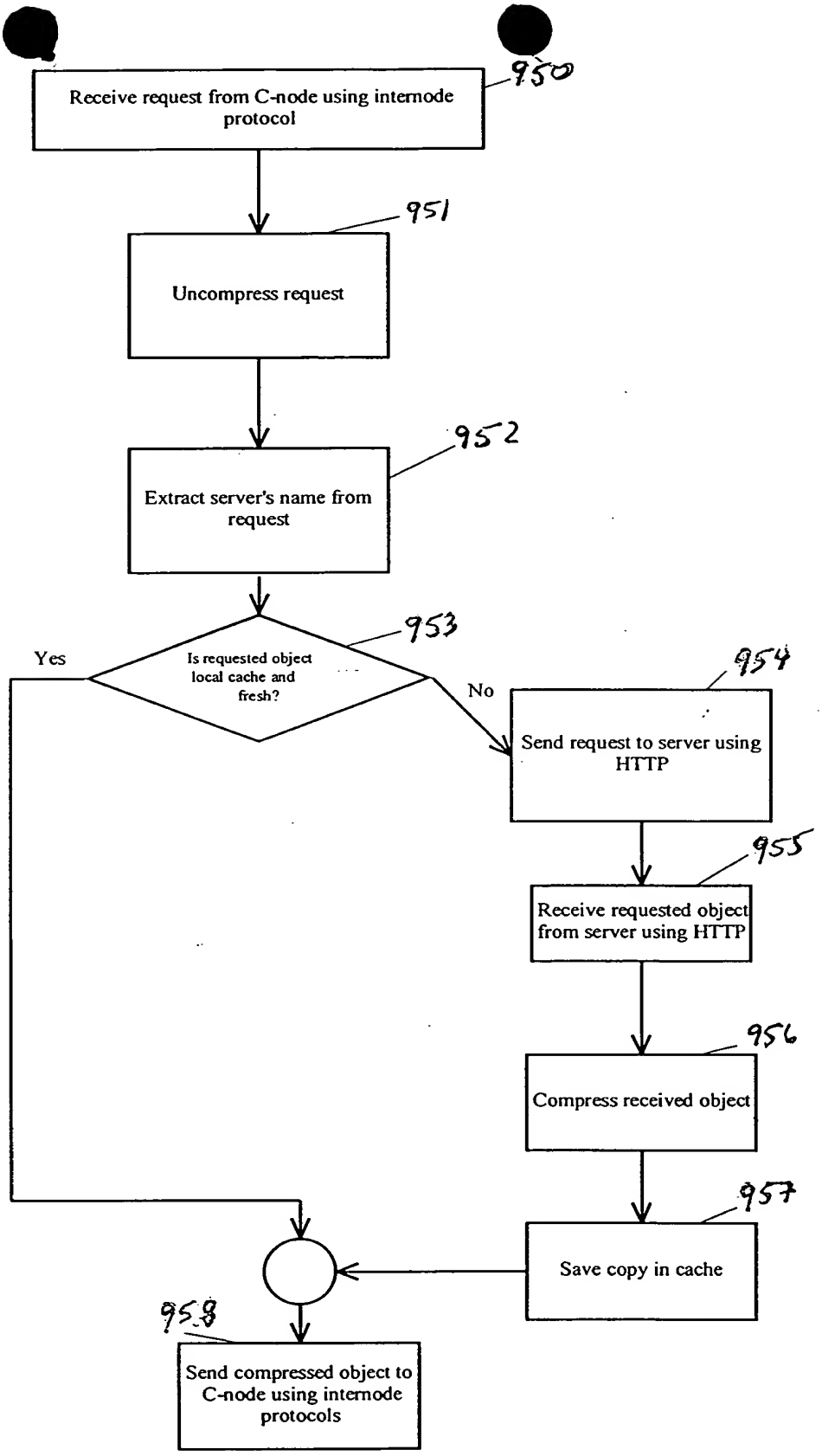
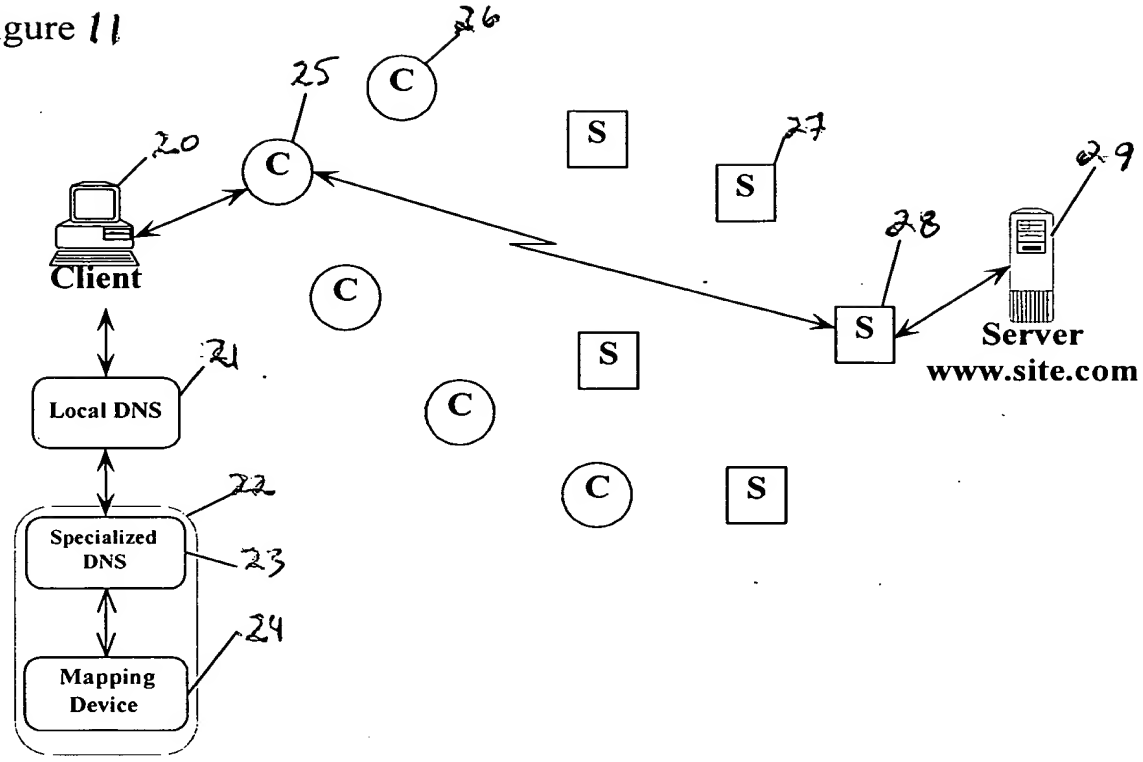

Receive request from C-node using internode protocol
950
Uncompress request
951
Extract server's name from request
952
Is requested object local cache and fresh?
953
Yes
No
Send request to server using HTTP
954
Receive requested object from server using HTTP
955
Compress received object
956
Save copy in cache
957
Send compressed object to C-node using internode protocols
958

Figure 11


26
25
C
S
27
20
C
S
29
28
Client
C
S
Server
www.site.com
21
Local DNS
C
S
22
Specialized DNS
23
24
Mapping Device